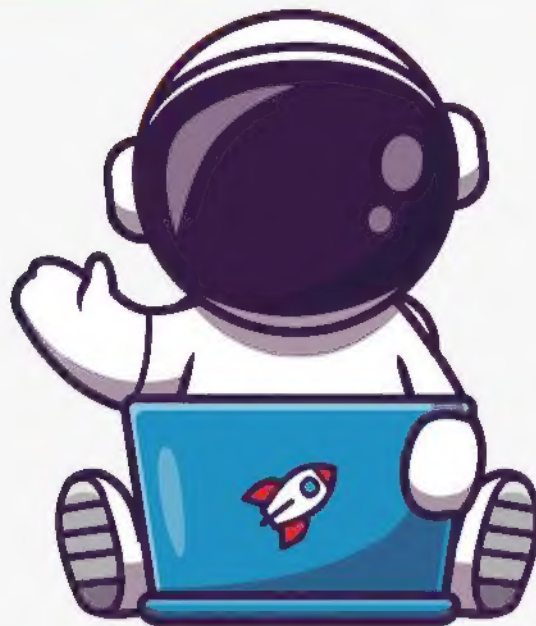Lesson preparation book

Information & Communication Technology

First semester

Prepared and designed by: Mahmoud Yassin El Shafei

ICT
Study plan

Sixth grade of primary school

Academic year 20   /20   , first semester

Week	Lesson	Content
	THEME 1 Role of ICT in our lives	
30/9/2023	Lesson 1	Explorer in Action (Enrichment content)
	Lesson 2	Computer network devices
7/10/2023	Lesson 3	Technology and artificial intelligence (AI)
14/10/2023	Lesson 4	Evaluating cutting-edge technology
21/10/2023	Lesson 5	Digital research skills
28/10/2023	Lesson 6	Mobile devices (Enrichment content)
	Lesson 7	Operating systems
4/11/2023	Lesson 8	Website design
11/11/2023	General Exercises on theme 1	
	THEME 2 Digital safety and security precautions	
18/11/2023	Lesson 1	Explorer in Action (Enrichment content)
	Lesson 2	How to deal with electronic games
25/11/2023	Lesson 3	Protecting yourself from digital theft
2/12/2023	Lesson 4	Cyber security
9/12/2023	Lesson 5	Copyright and electronic financial trading
16/12/2023	Lesson 6	Cloud storage of files
23/12/2023	Lesson 7	Cloud computing applications
30/12/2023	General Exercises on theme 2	
6/1/2024	First semester project	

Teacher   **Supervisor**   **School Principal**

LESSON 1
EXPLORER IN ACTION.

Date

Class

per

Objectives

By the end of the lesson, I will be able to:

- **Identify** how ICT tools can help make my school more inclusive.
- **Search** For websites that provide services For people of determination.
- **Describe** the role of information and communications technology in helping others.

"preface"

Why is it important for everyone to use ICT tools? What can you do to help someone?

Accompanying activities

Take the students to the computer room, ask them the introductory question, discuss the answers with them, and show them a video about Mr. Kartik Sawhney and the tools he is developing and the extent of their contribution to society.

View Lesson

- **Kartik Sawhney,** National Geographic Explorer and computer expert, holds degrees in Computer Science from Stanford University, focusing on AI and human-computer interaction.

- **He creates apps** to make visual content accessible to the blind, converting graphs into sound for over 12,000 individuals with disabilities.

- **Kartik co-founded istemai.com,** a platform that converts digital text into accessible formats and offers mentorship and employment opportunities for people with disabilities.

- **Egypt supports** people with disabilities through initiatives like the Taha Hussein Library, scholarships, and job training, aiming to integrate over 20 million Egyptians with disabilities into the workforce.

I-Stem

Evaluation

How can ICT tools be used to make your school more inclusive?

LESSON 2

COMPUTER NETWORK DEVICES

Strategy

Mind maps

Brainstorming

Date

Class

per

Objectives

By the end of the lesson, I will be able to:

• **Describe** the elements (components) of a computer network.

• **Describe** how network devices work.

• **Discuss** some Internet connection problems and how to deal with them.

"Preface"

Which networks are you part of and what do they allow you to do?

Accompanying activities

Take the students to the computer room and ask them the introductory question, discuss their answers, and ask them to think about the perfect network for the classroom. What network devices and computers will be used (PC or mobile devices)? Sharing their thoughts with their partner and give reasons for their answers.

View Lesson

1. Networks:

- Networks are connections between people or things for a common purpose.
- Various types of networks exist, both wired and wireless.
- Devices like servers, modems, hubs, and switches play essential roles in network connectivity.

2. Computers:

- Computers create, process, and store information.
- Different types include desktops, laptops, and mobile devices.
- Computer networks enable data sharing among devices.

3. Network Devices:

- Servers provide services to other computers and store data.
- Modems connect local networks to the internet.
- Hubs pass information to all devices, potentially causing slowdowns.
- Switches send data to specific devices, improving efficiency.

4. Artificial Intelligence (AI):

- AI is machine intelligence used for problem-solving.
- AI applications include navigation, voice recognition, virtual assistants, and holograms.
- Holographic images are gaining popularity in education and gaming.

Evaluation : Choose two types of networks in your community and talk about them

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Lesson (3)
Technology and artificial intelligence

strategy

Brainstorming

Practical application

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

• **Explain** the following terms: virtual reality, augmented reality, artificial intelligence.

• **Give** examples of virtual and augmented reality and artificial intelligence.

• **Discuss** how to employ advanced technology in our lives.

preface

What innovations will appear in the field of technology in your opinion in the next twenty years? What will you use it for?

Accompanying activities

Take the students to the computer room and ask them the introductory question and discuss their answers, along with showing them a presentation explaining the elements of the lesson and a mobile phone experiment to show an animal inside the classroom via the phone's camera in virtual reality.

View Lesson

Virtual Reality (VR):

1. Virtual reality creates a 3D virtual environment for users to explore and interact with.

2. Users usually wear virtual reality headsets that immerse them in another world by blocking out the real world.

3. Virtual reality can be used in education to explore topics such as science and history in an immersive way.

Augmented Reality (AR):

1. Augmented reality combines the real world with virtual elements using devices such as smartphones and tablets.

2. Augmented reality allows users to project 3D images onto real-world surfaces.

3. Augmented reality enhances learning experiences and makes learning more engaging.

Artificial Intelligence (AI):

1. Artificial intelligence refers to the ability of computers to think, learn and reason.

2. AI learns from analyzing available examples and can predict words or perform tasks such as facial recognition.

3. AI can be used for practical tasks such as unlocking phones and assisting individuals with disabilities.

How future technology can improve everyday life:

1. These technologies can greatly benefit people with disabilities.

2. Visually impaired individuals can use augmented reality to see family members up close.

3. Individuals with disabilities can benefit from AI-powered virtual assistants for everyday tasks such as making phone calls and using computers.

4. Examples of these technologies in action include virtual reality tours, augmented reality furniture visualization apps, and AI-powered robot vacuums.

Evaluation :

The ability of a computer to think and learn is called..................

Solving the book's questions, page (-   )

Lesson (4)

Evaluation cutting – edge technology

strategy

Think, pair, share

Cooperative education

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

- **Discuss** the experience of users of advanced technology.

- **Share** his ideas for developing an assistive technology product.

- **Evaluate** one of the advanced technology devices.

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask each student to think, then discuss with his colleague and share his ideas with the group, while making a presentation that explains the main points of the lesson.

View Lesson

cutting – edge technology includes:

   - Artificial Intelligence (AI) - Augmented Reality (AR) - Virtual Reality (VR)

Benefits of cutting – edge technology:

- Cutting–edge technology represents the newest and most advanced version of a product or service.

- It has transformed various aspects of life in ways that were previously unimaginable.

in education : cutting – edge technology plays a pivotal role in improving life and promoting integration into society. For people of determination, assistive technology such as smart gloves enables the instant translation of sign language into spoken or textual output.

Assistive technology for people of determination:

Assistive technology helps individuals with different abilities, including:

   - Screen magnification software.   - Hearing aids.

   - Speech-to-text and text-to-speech conversion programs

   - Scanning and reading devices for the visually impaired.

User experiences

- User experience includes how the product is used, interacted with, and evaluated.

- User experience can be positive or negative, and is often categorized into different aspects.

Products are evaluated according to the following:

- Accessibility   - Credibility   -Desire - findable - usable   - valuable

Evaluation

Hearing aids are considered a............... technology

Solving the book's questions, page (-   )

Lesson (5)

Digital research skills

Strategy

Practical training

Dialogue and discussion

Date

Class

per

preface

When was the last time you searched online for something? How quickly did you find the information you were looking for?

Objectives

By the end of the lesson the student will be able to:

• **Use** keyboard shortcuts, such as copy, cut, and paste in text processing.

• **Differentiate** between searches (in the database, in a library, and via the Internet).

• **Determine** the most effective research tool for a specific goal.

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask each student to think, then discuss with his colleague and share his ideas with the group, while making a presentation that explains the main points of the lesson with the practical application of editing tools and online research tools.

View lesson

Digital editing tools:

Common word processing commands such as copy, paste, and cut are necessary to process text, information, or images within a word processing file.

Keyboard shortcuts : Cut (ctrl + x), copy (ctrl + c), paste (ctrl + v)

Digital research tools: 1. Search online. 2.Specialized search engines. 3. Electronic libraries.

search engines :

These tools enable keyword-based searches.

-Easy to use, fast and produces many results.

Example: Google search engine.

Databases : Collections of information usually stored in computer systems.

-It can often be accessed for free through educational institutions.

Example: The Egyptian Knowledge Bank presents a wide range of topics with reliability and accuracy.

Library catalogues: Databases that include all materials in the library.

Example: The catalog of the Library of Alexandria

Evaluation:

What are the benefits of using online searches, databases, and library catalogs for research?

Solving the book's questions, page (-   )

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Lesson (6)

Mobile devices

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

-Identify common features in mobile devices.

-Provide suggestions on how mobile devices can support the learning process.

-Describe how mobile devices can improve the lives of people with disabilities.

preface

Why is it important to be able to find information easily? How do mobile devices make information easier to Find?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask each student to think, then discuss with his colleague and share his ideas with the group, while making a presentation that explains the main points of the lesson.

view lesson

Types of mobile devices:

1. Smartphones: These are multi-functional devices, mainly used for browsing the web and checking emails, and are equipped with cameras, speakers, and high-resolution screens.

2. Tablets: Similar to smartphones but with larger screens

3. E-readers: E-readers are similar to tablets and are primarily designed for reading books.

Mobile device features:

-They can connect to the Internet.   - Can be used in horizontal, vertical or flat directions.

-the ability to connect with other devices.

- Many mobile devices feature touch interfaces.

Mobile devices and learning:

Mobile devices expand learning opportunities beyond the classroom, engaging a wide range of students. Examples include creating multimedia content such as videos and images for projects and accessing educational materials via QR codes.

- Problems using mobile devices

- Providing solutions using advanced technology

Evaluation:

What are the common features of mobile devices?

Solution to the book's questions, page (-   )

Lesson (7)
Operating systems

Strategy

Critical thinking

Discovery learning

Date

Class

per

preface

What do you notice when you switch from using one smartphone to another? Or use a computer?

Objectives

By the end of the lesson the student will be able to:

- **Explain** what an operating system is.
- **Compare** the most common computer operating systems and mobile phone operating systems.
- **Determine** the operating systems for its devices.
- **Discuss** the HTML markup language.

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask each student to think, then discuss with his colleague and share his ideas with the group, while making a presentation that explains the main points of the lesson. Open a website on your phone and computer and discover the differences in the system.

View Lesson

Operating systems :

An operating system is a program responsible for managing various computer functions, including memory, disk drives, printers, and peripherals It acts as an intermediary between the user and the computer hardware and software.

Mobile operating systems: There are two main mobile operating systems:

1. Android: open source system allows anyone to access and modify its programming code.

2. Apple Ios: iOS is limited to iPhones and iPads, and is a closed source system.

Computer operating systems : Most computers come with pre-loaded operating systems:

1. Microsoft Windows   2. macOS

Advanced operating systems: - Robot Operating System (ROS)

programming languages

Hypertext Markup Language (HTML): HTML is a language used by programmers to create web pages. It is very popular in website development due to its ease of use, compatibility with major web browsers, and flexibility in adding elements such as text, links, images, audio, and videos to web pages.

Evaluation:

What operating system is on your device? What are the most common operating systems?

Solution to the book's questions, page (-   )

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Lesson (8)
Website design

Date

Class

per

Objectives

By the end of the lesson the student will be able to:

• **Write** html code for basic parts of a web page.

• **Define** some components of the HTML hypertext markup language for web pages.

• **Come** up with an idea and plans to create a website that promotes a developed product.

preface

Mention your three favorite websites. what do you like about it ?

Accompanying activities

Take the students to the computer room and ask them the introductory question. Ask each student to think, then discuss with his colleague and share his ideas with the group, while making a presentation that explains the main points of the lesson. Along with applying practical activities to use tags in creating a web page.

View Lesson

Hypertext Markup Language (html): It is the standard programming language used to create web pages, and describes the structure of a web page.

The basic elements for creating a web page: (headings - paragraphs - links - images)

Tags (language commands): consist of three main parts in creating a web page:

(opening tag - textual content – closing tag)

Website design

• HTML elements break up web pages to make them easier to scan, read, and navigate.

• HTML code can also help visually impaired people differentiate between parts of a web page.   **Commands used in HTML to build a web page:**

large heading	large heading	
Subheading	Subheading	
smaller Subheading	smaller Subheading	
paragraph	<p>= to create a paragraph.	
	</p>= To end a paragraph	
Font size	<font size="1">,<font size="7">	Numbers (1.7) Font sizes
Font color	<font color="red">	Font color is red
Hyperlink	Visit the Egyptian Knowledge Bank	
emphasized text	<i>emphasized text</i>	to write the font in italic format
bold text	 bold text 	To write the font in bold color

Evaluation : Now that you've learned more about web pages, do you have a better idea why you like a particular website?

Solving the book's questions, page (-   )